CASES

AND

OBSERVATIONS

ILLUSTRATIVE OF THE BENEFICIAL RESULTS WHICH MAY BE OBTAINED

BY CLOSE ATTENTION AND PERSEVERANCE, IN SOME OF THE

MOST UNPROMISING INSTANCES OF

SPINAL DEFORMITY,

WITHOUT THE USE OF STEEL STAYS OR OTHER SIMILAR CONTRIVANCES.

WITH ENGRAVINGS ILLUSTRATIVE OF THE CASES.

BY

SAMUEL HARE, F.R.C.S., ETC.

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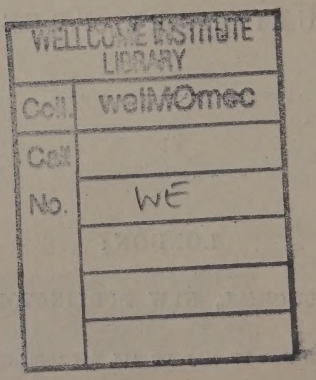

To William John Little, M. D.

With the kind regards of

the Author.

"It is on the study of the laws of nature that all human science is founded; and the treatment of disease, to be successful, must have their careful observance for its basis."

PRACTICAL OBSERVATIONS,

1*st Edition*, 1838, *page* 112.

INTRODUCTION.

HAVING had under treatment, in the course of a long-continued practice, a great number of cases of spinal deformity, apparently of the most unfavourable kind, but which have, nevertheless, terminated in a highly satisfactory manner, I have been induced to publish a short account of some of them, to show the improvement, both as regards general health and personal deformity, which may be obtained by the steady application of proper medicinal and local means, even in advanced cases of spinal disease; while, of course, in the

more recent ones, the objects in view are accomplished with greater ease and in a shorter space of time.

Having already, in my larger work on the "Prevention, Causes and Treatment of Curvatures of the Spine," entered fully into the causes, progress and effects of Spinal Diseases, I have deemed it unnecessary to do so now, further than may be required briefly to explain the subjects treated of, or to elucidate the cases which are given, amongst which will be found abstracts of two or three, which are detailed at length in the work alluded to, and which are selected, both on account of their extreme severity, and to illustrate the permanence of the cure, as they were treated many years ago.

Since the first edition of the present little work was published, I have had many cases under my care, the results of which still further demonstrate the great benefit derivable even in the most severe cases, from the plan of cure I adopt. Almost all the cases have presented some points of interest or importance, rendering them worthy of record; but as I could

not give even abstracts of so many, I have inserted a few particulars of some of them, as I deem them important illustrations of the subject on which I am treating.

9, Langham Place, London,

January, 1857.

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LATERAL CURVATURE.

INTRODUCTORY REMARKS.

Although the advantages and benefits which civilisation carries along with it are almost infinitely great, it must, nevertheless, unfortunately, be confessed that those advantages are not unaccompanied with some evils. It is probable, however, that most, if not all the disadvantages which thus accompany civilisation, are only associated, and not necessarily connected with it, and that a further study, or a more general appreciation of the laws of nature, would do much towards removing those evils which are so often found where comfort, refinement, and mental culture most prevail. If these disadvantages were a necessary part of civilisation, the penalty which society would pay for this latter would, indeed, be a severe one.

Now, it is well known, that some diseases and afflictions are common in the artificial state of society in which we live, which are comparatively rare in less civilised communities; and with regard to none does the observation apply more

forcibly than with respect to diseases of the spine, for no affections are more distressing or serious when developed, while few are so insidious in their approach.

Under the term Spinal Disease are embraced two different classes of affections—one in which caries of the vertebræ exists, and the other in which this condition of the bones is absent, though the deformity may be of enormous extent. This latter class includes by far the largest number of the instances of spinal distortion which come under treatment, and it is this class of affections which is especially met with in civilised countries; but, though these are so common, there is nothing inherent in an advanced state of society which necessitates their occurrence, or which implies that they should continue to be so prevalent, for a knowledge of their causes, and attention to a few very obvious laws and rules during the period of childhood and youth, would go far towards preventing such deformities.

Lateral curvature is the form of spinal disease which is far more common than any other, especially in the female sex. Under this term are included those cases in which the deviation of the spine takes place directly to one or the other side, or where there is at the same time a curve in the column, slightly outwards and backwards—the difference in the precise inclination of the curvature resulting from various incidental circumstances during the period when the deformity is progressing.

But, although the direction of the curve may be modified, and, in some instances, the curvature itself induced by certain employments, by the habitual use of a particular posture, or by the shortening of one of the lower extremities, yet I have shown, in the work already referred to in the Introduction, that

its most common cause is injurious pressure, produced by the wearing of stays and other articles of dress, which accounts for the enormous frequency of lateral curvature in the female compared with the male sex. As regards the changes which take place in the parts affected, the muscles along the inside of the curve become diminished in bulk, and contracted from their long inactivity; the intervertebral cartilages are always compressed and diminished in thickness in the concavity of the curvature, while in the more severe and the longer continued cases, the bones themselves become softened and thinned on the same side, and likewise sometimes so twisted on their own axes, that the front part of their bodies looks towards the convex side of the curve, and their spinous processes, more or less, towards the concavity. It is amongst these last-named cases that are found some of the most distressing instances, so far as the symptoms are concerned, and most frightful as regards the appearance, of any that are met with of lateral curvature; yet the results of treatment hereafter detailed will show that such cases are not beyond the reach of cure.

CASE.—*Very considerable lateral curvature of the spine and deformity of the ribs, of seven or eight years' duration: rapid improvement as regards both health and deformity.*

Miss O., aged seventeen years, residing in the county of Derby, was very weak, and suffered exceedingly during childhood, having, amongst other complaints, a severe attack of croup, from the effects of which she was long so ill as not to be expected to recover. When six years of age she had a very severe rheumatic attack. She was at this time exceedingly delicate, and lost her flesh so much that her medical

adviser, as well as her friends, considered her consumptive: since then she has suffered much from bilious headaches, which commenced in a morning throughout the frontal region, being attended with giddiness, and affecting the eyes so much that she could not bear to read.

The deformity of the spine was first observed about seven or eight years ago, though little attention was then paid to it. It has gradually increased to the present time, more especially within the last three years. During this period, she has likewise suffered much pain in the chest and back, but most severely in the ribs of her right side, and her weakness has increased so as to cause her to be much fatigued with trifling exertion; sitting for an hour or two giving her great pain, and producing a sensation of weakness throughout the whole trunk: she also describes a peculiar soreness of the projecting angles of the ribs, when she lies upon them.

Her present general symptoms are (Oct. 16, 1844,) as follow:—

The complexion is sallow, the skin of her arms and back is very rough, the latter having many pimples upon it, of the character denominated "acne." She is still troubled with her cough and difficulty of breathing; there is considerable lassitude on exertion; she is still subject to the frontal headaches with giddiness, from which, as stated in the previous history, she has long suffered. There is a sensation of great weakness in the spine, and the curvature presents the following appearances:—

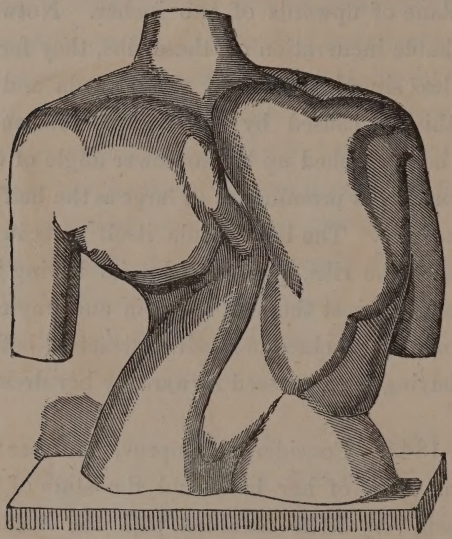
The vertebral column is curved two inches to the right, in the dorsal region, there being a compensating curve in the opposite direction in the loins. There is great excurvation of

the ribs on the right side, which form, at the same time, an angular ridge projecting posteriorly, considerably more than the spinal column. The scapula is thus forced to the outer side of this ridge, and is, therefore, placed on the lateral rather than on the posterior surface of the thorax: hence, in lying down, she rests on the plane, on the right ribs only—the left ones and the scapula on that side being at a distance from the plane of upwards of two inches. Notwithstanding this remarkable incurvation of these ribs, they form a prominence not less singular between the scapula and the spinal column; this is caused by the fourth, fifth and sixth ribs especially being pushed up by the lower angle of the scapula, and thus forming a prominence as large as the half of a moderate sized orange. The left scapula itself rests in a considerable hollow of the ribs, produced by its having been continually pressed against them by the firm and unyielding stays she had worn. The chest is much contracted, both arms and shoulders having been pressed forward by her dress.

Jan. 16, 1845.—Considerable improvement has taken place both in the form of her back and the state of her health. She has been very little troubled with the head-aches, her complexion is clearer, and she has fewer pimples on her back and face; her cough and difficulty in breathing trouble her little, at which we may be the less surprised on account of the great expansion which has taken place in her chest; its capacity having increased from seventy-five to ninety-five cubic inches.

April 16.—She has now been under treatment six months, and, considering the very unfavourable nature of the case,

both as regards the deformity and the state of her health, she has improved much more than could have been anticipated, as is shown by the engravings, which, as well as the others, have been taken from the casts with great care.* The incurvation of the left side is much less, and the protrusion of the ribs on the right side is dimi-

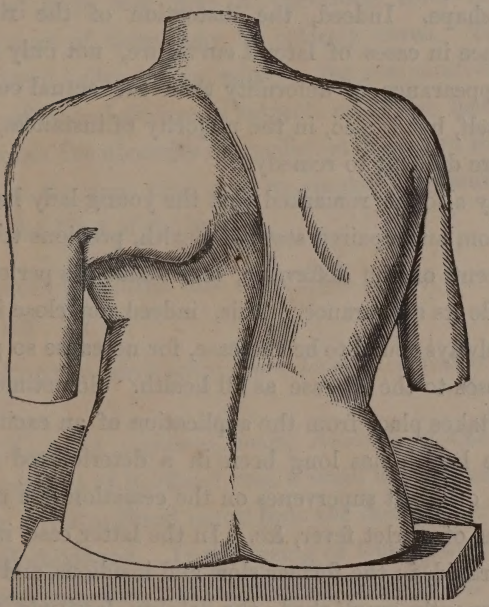


nished in the same proportion, so that when she is laid down, both scapulæ rest upon the plane; the soreness of the distorted ribs has nearly gone off, the ridge-like prominence of these bones is much diminished, the right scapula is more readily seen and felt when put into action. Her general

* They have been executed by Mr. W. Brewer, of Fleet-street, to whom I am much obliged for the great care he has bestowed upon them.

health is astonishingly improved, her cough has entirely left her, and she suffers from her bilious attacks in a very trifling degree; the state of the secretions is much more natural, and scarcely anything remains of the eruptions on her back and face.

Though she may be said to have completed her growth,



she has increased in height $1\frac{1}{4}$ in., and, on measuring the circumference of her waist and the width of the stays she wore prior to commencing the treatment, there is an increase in the former of four inches.

Remarks.—This case, although presenting, at first sight, a less amount of actual deformity than some others of lateral

curvature, is one of those instances of this form of the disease, which offer the greatest difficulties in a remedial point of view. The spinal column was, as usual, curved to the right in the dorsal region, but the great extent to which the vertebræ were twisted on their own axes, and the consequent proportional deformity in a portion of the ribs of the right side, rendered it extremely difficult to restore them to their natural shape. Indeed, the distortion of the ribs, which takes place in cases of lateral curvature, not only adds more to the appearance of deformity than the actual curve of the spine itself, but is also, in the majority of instances, considerably more difficult to remedy.

It may also be remarked that the young lady had suffered much from an impaired state of health, previous to the commencement of the deformity, and about the period when it first made its appearance. This, indeed, on close inquiry, is almost always found to be the case, for no cause so powerfully predisposes to the disease as ill health. Sometimes the deformity takes place from the application of an exciting cause, after the health has long been in a deteriorated condition, while in others it supervenes on the cessation of a more acute attack, as of scarlet fever, &c. In the latter case its progress is often rapid, in the former slow and insidious, and for a long time frequently overlooked; the debility, lassitude, the aching pain in the back, and the various symptoms, properly referable to the deformity, being often ascribed to other causes. Thus do curvatures gradually advance undetected, until, from their extent, they force themselves on the attention of the sufferer herself, or that of her friends. In other instances they are discovered at an earlier period, but it being supposed that the child "will outgrow them," little or no attention is

unfortunately paid to the circumstance, and the deformity gradually increases; for although, in some diseases, the tendency of nature is always towards a restoration to the healthy state, such is not the case here, and the consolidation of parts, if effected without the aid of proper means (supposing it to take place at all) is always in a curved direction. On the other hand, when the treatment is commenced sufficiently early, almost every case may be prevented from becoming worse, and most of them may be entirely cured. The fact, however, already adverted to, namely, the comparatively rare occurrence of spinal disease in subjects otherwise healthy, at once points out the necessity for medicinal treatment to correct the health, at the same time that we employ mechanical aids to improve the form of the body.

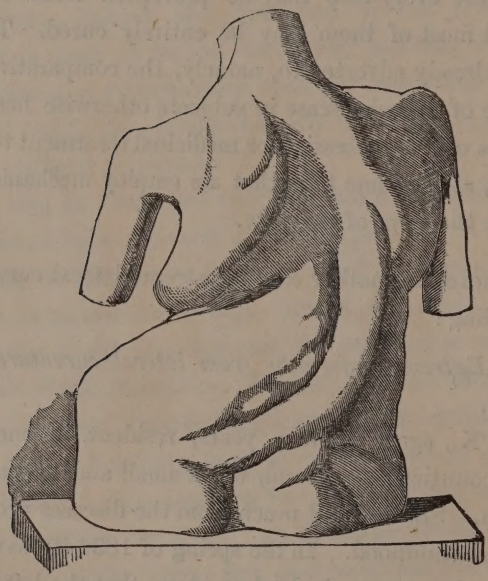
The annexed is another case of extreme lateral curvature of long standing:

Case.—*Extreme deformity from lateral curvature: great emaciation.*

Miss M'K., aged eighteen years, resident in one of the northern counties of Scotland, was a small and delicate child when born. She suffered much from the diseases peculiar to infancy and childhood. In the spring of 1834 it was observed that a lateral curvature had taken place, that the left hip was prominent, and the ribs of the right side protruded considerably; but it is probable, from the history of the case, that the disease had existed some time previously.

When I first saw her, the deformity had assumed the serious and alarming form represented in the first of the accompanying sketches. The left scapula rested in a complete fossa, formed by the posterior part of the ribs, which were rendered

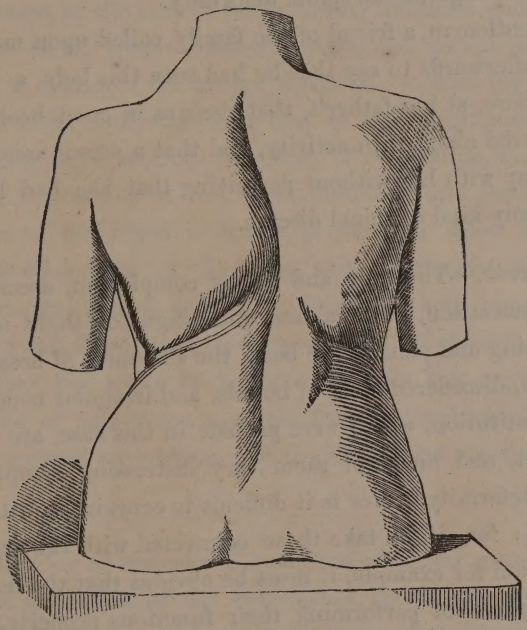
concave instead of being convex, and these, by their junction with the spine, had pushed a portion of the column under the heads of the ribs on the opposite side, four of the vertebræ having so entirely disappeared, that, strange as it may seem, they were not perceptible when the spine was inspected from behind; the ribs, on the right side, formed an angular and



nearly perpendicular ridge, which it required no small degree of care to distinguish from the spine itself, the entire trunk presenting a very extensive sigmoid distortion. As may be supposed, her health was in a very unfavourable state.

She commenced treatment in October, 1836, and an improvement both in her form and health was soon observed, as she began to lose the wan and emaciated appearance she had

when she first arrived. In July, 1837, her medical friend, Mr. Hall, of Glasgow, paid her a visit, and, among other warm expressions, said that "had he not had an opportunity of satisfying himself, by ocular demonstration, of the surprising alteration which had taken place, he could not have given credit to it."



October 1.—Her strength was considerably reduced by a severe attack of influenza which she had a month ago, but she is now again regaining her strength. The spine has almost regained its natural position, the folding of the integuments has nearly disappeared, and her figure is proportionably restored to its natural state, her height having increased more than five inches. The complexion has improved, her coun-

tenance is more animated; all the functions are regularly performed, and the body has acquired much of what the French call "embonpoint."

She left for Scotland in November, considerably recovered from her attack of influenza, but not looking so well, nor being so strong as previous to its attack, though still further improved as regards the spinal deformity.

A gentleman, a friend of the family, called upon me several years afterwards to say that he had seen this lady, a week or two before, at her father's, that she was in good health, that she moved about with activity, and that a person might be in company with her without perceiving that she had laboured under any kind of spinal disease.

Remarks.—The pale and sallow complexion, accompanied with emaciation, the weakness and fatigue on slight exertion, the aching and pain in the back, the shortness of breath, palpitation, disordered state of bowels, and irregular condition of the constitution, which were present in this case, are all very frequent, and many of them very distressing symptoms of spinal deformity. Nor is it difficult to conceive how they are induced; for, if we take those connected with the organs of respiration for example, it must be obvious that the lungs will be incapable of performing their functions properly, when, from the contracted and deformed state of the chest, their capacity is diminished, and their free action impeded. The extent to which they suffer depends partly upon the amount and partly upon the nature of the deformity, supposing always that they are themselves actually free from disease. If, together with considerable lateral curvature, the ribs be much compressed (so as to render the transverse diameter of the

chest little, if at all, greater than its antero-posterior one) and the sternum be prominent, thus constituting what is termed being "pigeon-breasted," the suffering from difficulty in breathing is very considerable; great distortion, however, may be present without there being any affection of the lungs themselves, further than their capacity being diminished. In the latter case, as the cure of the deformity advances under the treatment—as the spine becomes straightened, and as the ribs are made to assume their proper direction, so does the capacity of the chest, and, therefore, that of the lungs, increase: the difficulty and unnatural frequency of respiration, and the feeling of oppression at the chest diminish, and the decarbonization of the blood is better performed; there is less liability to congestion of the lungs, and I doubt not, that in some instances, more serious mischief in these important organs is averted; so, also, as the passage of the blood through them is freer, the action of the heart becomes less oppressed, the attacks of palpitation are less frequent and less severe, while the general circulation is at the same time more equalized.

The following severe case of complicated lateral curvature, with great distortion of the extremities, shows, not only the effects of treatment on the spinal disease, but also the improvement which resulted, as regards the capacity of the chest. The latter was ascertained by means of the *Pulmometer*, or apparatus by which the quantity of air which an individual is able to expire from the lungs, after a deep inspiration, can be ascertained. It consists of a glass vessel, marked with cubic inches, from 10 to 300. This is accurately suspended in a circular vessel of water, and counterbalanced

by means of weights attached to it with cords, and passed over pulleys properly arranged; the patient then fills his or her chest, and breathes through a tube into the meter, the rising of which shows, of course, the quantity of air expired, and, on comparative trials, the increased or diminished capacity of the lungs or chest.

CASE.—*Extreme deformity from rickets, not only of the spine, but of all the limbs: height of the patient only thirty-six inches.*

C. O., aged twenty-three years, was born a fine child in November, 1820. When five weeks old, she had a severe inflammation of the lungs, from which she was not expected to recover; this attack left her exceedingly weak. In April, 1823, she had a fall, by which her clavicle was fractured; she now became very ill, was very much emaciated, and, subsequently, unable to walk for upwards of three months. This illness was followed by the measles, after which she had a long confinement, attended with eruptions on the face and head. She afterwards improved somewhat, but has never since been entirely free from pain in her limbs, and indeed throughout the whole body. In 1826, so much deformity had taken place in her back and limbs, that she had jointed iron supports made, which passed round the abdomen and down to each foot; she wore them from nine to twelve months, but was obliged to give up their use, owing to the pain and inconvenience they produced.

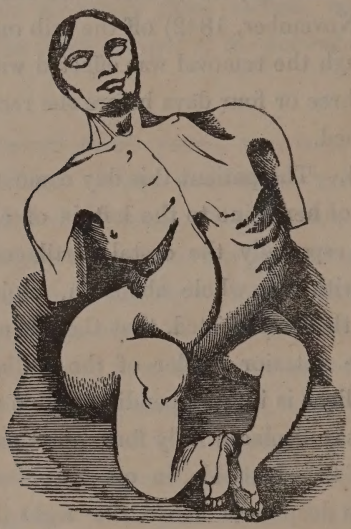
About this time she had a fall upon her knee, which was much hurt, and soon after, another, by which her thigh was fractured; she again suffered a long confinement, and subse-

quently had to use crutches for nearly twelve months, being extremely weak, but especially in her limbs. In 1832, she had again the misfortune to have a fall, by which her left leg was so much injured, that she has not been able to put it to the ground since, being obliged to be wheeled about in a carriage made for the purpose, until the autumn of 1835, since which period she has not been out of the house; such, indeed, have been her sufferings, that, since June 1837 she has only been once (in November, 1842) off the crib on which she now lies, and although the removal was effected with the greatest care, she was three or four days before she recovered from the pain it occasioned.

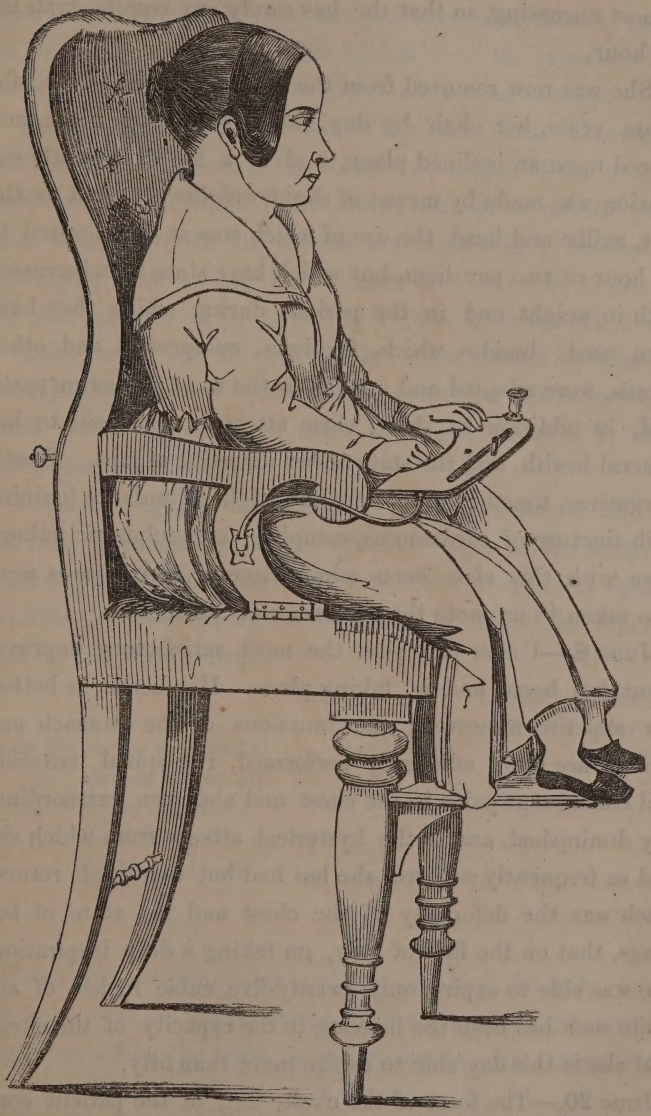
May 1, 1844.—The patient this day came under my care. The distortion of her spine to the left is of extreme extent; the ribs, and especially the costal cartilages on the same side, together with the whole abdomen, project excessively; and so much is the body twisted, that the left nipple is directly underneath the anterior border of the axilla on that side, while the umbilicus is in a perpendicular line with these two parts, so that it is displaced fully four and a half inches to the left: the ribs of the right side, in curving over to the opposite side, form a deep fossa above the right hip, where the folds of the integuments, from being in continual contact and from the frequent friction which takes place between them, are often inflamed, and give rise to almost constant soreness. The right hip projects extremely, and above it there is very considerable incurvation of the spine. The bones, both of the arms and fore arms, are distorted, and both thighs have an exterior curve; the tibia and fibula of the leg are also much curved in the same direction, and rather outwards, so that the sole of the foot is somewhat bent inwards. This, however, is

more the case with the right side, for at about two inches above the ankle, the bones of the leg are suddenly distorted inwards at so acute an angle, that the sole of this foot looks inwards and upwards towards the left shoulder, and she can see it as she reclines on her crib.

The patient suffers from very severe attacks of spinal irrita-



tion, giving rise to extreme pain in various parts of the chest, abdomen and head, with corresponding tenderness along the course of the spinal column, and she has frequent attacks of hysteria. She is never able to lie down *entirely*, but has four or five pillows (generally the latter number) to support the back, and cannot rest without them. Her sufferings are, and have been, chiefly in the chest and abdomen, though her back and limbs have been nearly as bad; the pains and distress are



almost unceasing, so that she has rarely any respite, even for an hour.

She was now removed from the crib, which had been, for seven years, her chair by day and her bed by night, and placed upon an inclined plane, and in a few days gentle extension was made by means of slight weights attached to the feet, axillæ and head, the use of which was at first limited to an hour or two per diem, but which have since been increased both in weight and in the periods during which they have been used: besides which, frictions, compresses and other means, were adapted and applied to the most projecting parts, and, in addition to these, close attention was paid to her general health, and the state of her digestive organs. Gentle purgatives, together with tonics and slight stimulants (quinine with tincture of cardamoms, camphor, and sulphuric æther), have with this view been administered. Great pains were also taken to promote the expansion of the chest.

June 8.—Under this plan the most satisfactory improvement has been, and is, taking place. Her health is better, her appetite improved; the functions of the stomach and bowels are more efficiently performed, the spinal irritation and consequent pains in the chest and abdomen extraordinarily diminished, and of the hysterical attacks from which she had so frequently suffered, she has had but one single return. Such was the deformity of the chest and the state of her lungs, that on the first of May, on taking a deep inspiration, she was able to expire only twenty-five cubic inches of air, while such has been the increase in the capacity of the chest, that she is this day able to expire more than fifty.

June 20.—The form of the chest, &c., of the patient continuing so obviously to improve, I have this day a third time

ascertained its capacity, and am glad to say that there is again an increase of twenty cubic inches over the number last named, as she is now able to expire more than seventy.

There is much less projection of the chest and abdomen to the left, the umbilicus being within two inches of the median line, and the left nipple has resumed more of its natural position, besides which, the breasts are beginning to be slightly developed, they having before been as flat as in a girl of ten years of age. The deformity of the left tibia and fibula is diminished; and as regards the angle formed by those of the right side, which before was so acute that the little finger could not be placed in it, there is now a space of at least three quarters of an inch.

The following measurements will give an accurate idea of the relative proportions of the different parts of the body, as regards the length on the *right* side. The first row of figures exhibits the state she was in on the 1st of May; the second, that on the 20th of June.

	May 1.	June 20.
	INCHES.	INCHES.
From the vertex to clavicle	9	9½
„ clavicle to the hip	6	8½
„ hip to the knee	8*	11
„ knee to bend in the leg	7	7
„ bend to the heel	6	5
	36	41

From the foregoing table it will be seen that the body, from the knee upwards has increased six inches, while the convex angle formed by the bend in the right leg, has diminished

* The distortion about the pelvis is so great that it cannot be said to add to her length at all.

one inch, consequently the increase in the entire length of the patient, since the 1st of May, is five inches.

Sept. 7.—The patient has this morning used the pulmometer a third time since the last report, and the increase in the capacity of the chest has steadily progressed: the number of cubic inches of air expired on the different occasions (at intervals of about a month) having been respectively seventy-nine, eighty-three, and ninety; her health at the same time improving, and the deformity decreasing.

April 21.—In December last, she was so much improved that she was taken down stairs, being the first time she had left her room for seven years and a half: since then she has been down several times, and is almost daily removed from her plane.

At present her general form and figure are much improved: she lies uniformly straight on her plane; the chest and abdomen to the left project only in a trifling degree, the breasts and umbilicus being nearly in a proper direction. She has no soreness from the folding of the integuments on the right side, and the twisting of the spine, as well as the incurvation there, are much diminished: the projection of the right hip is considerably less, and both feet are in a more natural direction, especially the right one, the sole thereof being no longer turned inwards and upwards.

The spinal irritation, though at times somewhat severe, is greatly diminished, the chief suffering being in the epigastric region: the attacks of hysteria, along with this irritation, have been less frequent, but still severe when they have come on. Her general health is greatly improved: her bowels are now moved almost daily, and the state of the secretions is much altered for the better.

July, 1845.—Since the former report, a chair, as represented at page 25, has been constructed for this patient, which, together with the improvement in her deformity and health, enables her to sit up daily, attending to sewing, netting and other light work.

Remarks.—This case from its long duration and from its exceeding complexity, was of a very unpromising character, and yet, as seen from the preceding report, she derived great benefit by means of the plans adopted, the body being much straightened, her limbs less bent, and her length considerably increased, while the abdomen was greatly diminished in size, and her sufferings from spinal irritation were much alleviated. It is interesting, not only on account of the extreme character of the deformity, but equally so as illustrating the permanence of the improvement, for I have frequent opportunities of seeing this patient, and now, after the lapse of twelve years, she enjoys a state of health and comfort she was an entire stranger to before: indeed, she continues quite as well as when she left off treatment; and, in the summer of each year since, has been able to spend from two to three months in the country. She has become very stout, and in appearance as well as in reality, a comparatively healthy person.

Another case, scarcely less important or interesting than, and very much resembling, that of Miss M'K., may be also adduced as illustrating several points to which reference has already been made.

Case.—*Lateral curvature of the spine; great incurvation of ribs of left side, and prominence of the hip.*

Miss W., aged twenty-two years, residing in the City, con-

sulted me on the 5th of December, 1843, on account of great distortion of the left side. On examination, the incurvation of the ribs was so great as to leave a space of full three inches between the arm and the side: the excurvation of the right side, and prominence of the left hip, being large in proportion. The complaint existed when she was fourteen, and had gradually increased to the time when I saw her.

After she had been three months under treatment, the improvement which had taken place was such as greatly to exceed the expectations of herself and friends. So much was her chest contracted, when first seen, that on taking a deep inspiration, she was able to expire only sixty-two cubic inches of air, while, such had been the increase in the capacity of the chest at the end of three months, that she was able to expire rather more than one hundred. The incurvation of the left side was much diminished, her figure more erect, the state of her health greatly improved, her digestive organs being more healthy, her complexion more clear, and her cast of countenance and other symptoms being indicative of a better state of health.

Case.—*Extreme Lateral Curvature, with severe Complications.*

Miss E. M., aged fifteen.—When I first saw her, the deformity had existed, though at first but slightly, for seven years: she still suffered greatly, was exceedingly weak, and much emaciated; when she stood up, her body bent considerably to the left side, owing to an extensive sigmoid flexure, occupying indeed the whole of the spine; the largest curve included the whole of the dorsal and two of the lumbar vertebræ, its convexity being to the right side, thus

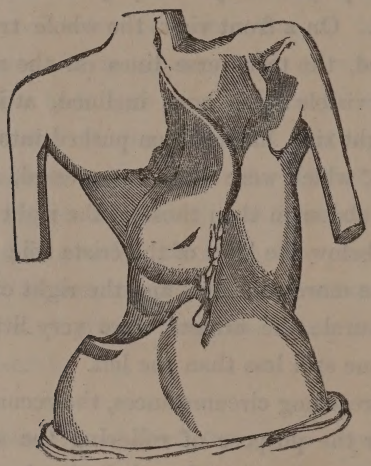
raising that shoulder, and proportionally depressing the other; the ribs on each side were very much twisted, the right being exceedingly excurvated backwards, thus causing the scapulæ over them to project very considerably, and the left ones, especially below the scapula, being equally bent inwards.

When she lay upon her back, so that the right scapula rested upon the plane, the left one was at the distance of an inch and a quarter from it; there was a space of *fully* $3\frac{1}{2}$ *inches between the left side and the arm,* in its dependent position, while *the projection of the hip of that side was not less than* $2\frac{3}{4}$ *inches.* On a front view, the whole trunk appeared much emaciated, the transverse lines on the sternum being very distinctly visible: this bone inclined, at its lower part, towards the right side, having been pushed into that position by the left ribs, which were much compressed, and projected lower into the abdomen than those of the right side, reaching down, indeed, below the level of the crista ilii; the left ribs, anteriorly, were more rounded, and the right ones more flattened than natural: the breasts were very little developed, but the right one still less than the left.

Under the preceding circumstances, the recumbent position was adopted for the purpose of relieving the spinal column from the superincumbent weight of the head and shoulders, which, in its very diseased and distorted state, it was unable to sustain. Gradual and perfectly easy extension of the spine was also employed, which assisted the distorted vertebræ to resume their proper position: pressure by the hand was also made on the projecting or convex parts to incline them to their natural position, and other means, such as are alluded to in the preceding observations, were employed.

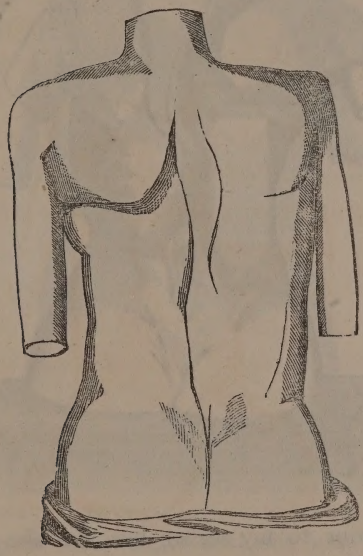
The patient's health speedily began to amend, and by the

end of July the prominence of the right ribs and scapula had so far diminished that, as she lay upon the plane, the left shoulder touched it, the two scapulæ being therefore nearly on a level: the spine had also become much straighter, while, anteriorly, the right ribs, which were previously flattened, had assumed a much rounder appearance; she also became much stouter.



Miss M. remained under treatment until the 4th October, soon after which she returned home, her figure in walking being quite erect,—the shoulders nearly in their natural position,—the form of her chest both anteriorly and posteriorly good,—the ribs on each side having much more of their na-

tural curve, and the spine retaining, comparatively, only a trace of its former deformity. The incurvation of the left lumbar region had so much diminished, that the distance between the side and the arm measured only an inch, that is, very little more than on the right side.



CASE.—*Sigmoid Lateral Curvature.*

Miss T., aged twenty-five years, residing in the county of Somerset, came under treatment February 3rd, 1846. She was always delicate during childhood, having suffered much from infantile diseases. It was first observed about the year

1837 that she had a curvature of the spine, and from that period she became gradually weaker, so that in a few months she was scarcely able to walk, owing to the lassitude and fatigue which such effort occasioned.

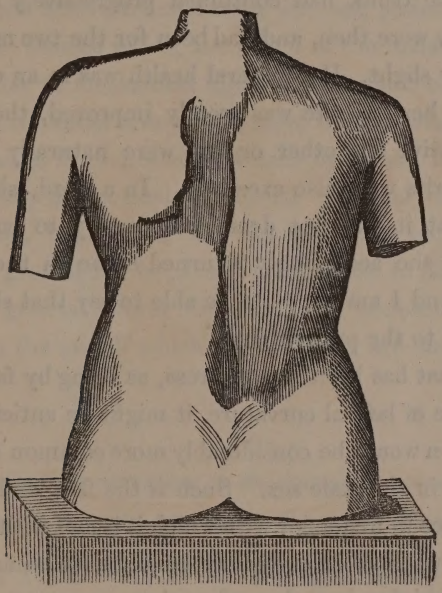
Various plans for her improvement in health and form had

been adopted prior to my seeing her, but she gradually got worse: the following is an abstract of the notes of her case, when she first came under my care:—

"She is of middle stature, and (with the exception of the spinal disease) of good conformation; rather thin, but not emaciated: the habitual state of her mind is cheerful.

"The deformity presents the following appearances:—The vertebral column is curved two inches to the right in the dorsal region, there being a compensating curve of more than

ordinary size in the opposite direction in the loins; and, at the lower third of the dorsal region, where these two curves meet, the spine is likewise considerably excurvated. The upper eight ribs of the right side are much bent backwards; thus projecting more posteriorly than the spinal column, and



forcing the scapula outwards, so that this bone is placed more laterally on the thorax than it should be. The lower four or five ribs of the left side project backwards in the same way that the upper ones do on the right side, and besides this, (especially in the axilla) the left side of the trunk is curved inwards, so as to leave too great a space between it and the arm on that side; while, on the other side of the trunk, there is a similar but smaller bend, and situated lower down, as it corresponds with the lumbar curve of the spinal column."

The treatment, which commenced on the 4th February, was similar to that adopted in the preceding case, but modified so as to suit the peculiarities of the curvatures, and was continued for nine months, when she was able to return home—the spinal deviation, the projection of the ribs, and the lateral curves of the trunk had continued progressively to improve, so that they were then, and had been for the two months past, exceedingly slight. Her general health was in an exceedingly good state, her appetite was greatly improved, the functions of the digestive and other organs were naturally performed, and her spirits were also excellent. In a word, she was now so well that it was not deemed necessary to continue the treatment: she accordingly returned home in the course of the week, and I am happy to be able to say that she has continued well to the present time.

From what has been said of dress, as being by far the most fertile cause of lateral curvature, it might be anticipated that this affection would be considerably more common amongst females than in the male sex. Such is the fact, and so great is the difference in frequency with which it is met with in the two sexes, that while it is extremely common in females in the middle and higher branches of society, amongst males it is, comparatively, a rare disease, and even then seldom arises, except from mechanical injury, or from employments causing a more than ordinary use of one extremity, or from disease of the hip-joint, producing an oblique position of the pelvis, and, therefore, (in order to keep the head over the centre of gravity) some twisting or curvature of the spine; or, lastly, from caries of the sides of the vertebræ.

In the next case, which was one of extreme, or it may be truly said, of enormous oblique curvature, (a form of lateral

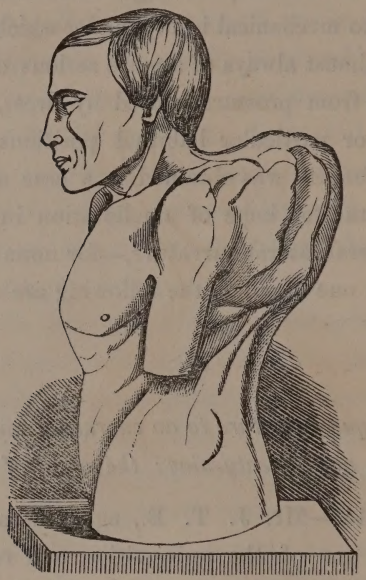
distortion already alluded to, and in which the direction of the curve is intermediate between those cases which project laterally and those which project directly backwards), anything like a perfect correction of the parts could not be anticipated, because a certain amount of anchylosis had already taken place between the vertebræ during the long period the disease had existed: besides which, the origin of the malady was likewise traceable to mechanical injury, under which circumstance the disease is almost always of a more serious character than when it results from pressure caused by dress, from certain employments, or particular habitual positions of the body. As, therefore, benefit was obtained in a case such as this, it gives good ground for hope of amelioration in almost every instance of general lateral curvature,—for none could be more severe than the one of which the following are some particulars :—

CASE.—*Oblique curvature to an enormous amount occurring in a gentleman, aged twenty-nine: the result of an accident.*

Oct. 22, 1844.—Mr. J. T. E., aged twenty-nine years, a graduate of one of the universities, and residing in the county of York, came under treatment this day.

He had always been weakly and subject to great lassitude during the whole of childhood and the period of his growth. When thirteen, he fell from a high tree, and was caught on his right shoulder, by one of the large branches: from this time he suffered much pain in his back and shoulders, especially after exercise, and became crooked in person: in the course of a year his deformity increased very considerably, and has continued to do so to the present time: his stature is

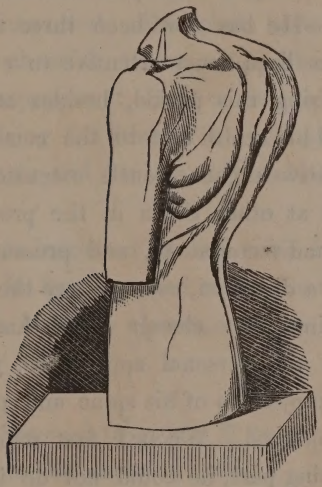
much diminished, as he has lost four inches in height since the year 1832. For several years he has had a "rattling or knapping sound" of the ribs against each other, and this has been so loud as to be heard by any one walking with him. He has considered himself asthmatic, owing to his difficulty in breathing, and has been very subject to coughs, colds and bronchial



affections during the winter season, especially for two or three years past: he is much affected in going up stairs, ascending a hill, or using any extra exertion: he has also suffered considerably from nervous feelings and a peculiar faintness at the epigastrium, and his alvine functions have been much disordered.

On examining his back, there is an enormous projection, which is formed by a twisting of the spine backwards and out-

wards towards the right, the whole of the ribs of that side being curved at so extreme an angle, as to form a ridge or line of such an extent that the upper part of it is seen above the right shoulder, by a person standing or sitting in front of him. This deformity has doubtless been increased by a habit he has long indulged in, with a view to relieve himself—viz.,



sitting in an arm-chair, with his right leg over one arm of it, and with his left side resting against the other. His neck is so very short and distorted, that it can scarcely be seen at all. After his daily engagements, he is accustomed to lie down on the floor : but such is the size of the projection or hunch, that he cannot do this without having two large pillows, or books to the height of at least six inches, arranged so as to support his head. There is so great an excurvation of the ribs of the right side, that the arm rests completely upon them,

while, on the left, there is such an incurvation, that the arm is fully two inches from them, the integuments here being much wrinkled. The left hip projects two and a half inches more than the right, and there is a general prominence of the chest and abdomen to the right side.

As respects his general health—he is of a spare habit, his complexion is sallow, his digestive organs are in a morbid state, the secretions being unhealthy and offensive.

Jan. 23, 1845.—He has now been three months under treatment, and has been most attentive to every direction given to him. During this period, besides attention being paid to the state of his health and to the condition, in particular, of his digestive organs, gentle extension, sometimes in the dorsal, and at other times in the prone recumbent position, has been had recourse to, and pressure applied by compresses in such a direction, as to restore the spine towards the perpendicular line. The change which has taken place, both in his health and personal appearance, is exceedingly satisfactory. The projection of his spine and parts adjacent, is already much improved. When I first requested him to lie upon the projecting part, he could not do it—that is, he could not steady himself upon it; now he has no difficulty in doing so; he can lie upon it nearly with the same ease he can upon the more flat part of his back; indeed, he feels more comfortable on the plane than in a bed; and when he sits up, can do so with his head erect, which he was not able to do before. The hunch, or projecting part, is so much less that it can scarcely be seen by a person standing before him. His hat, which used to rest upon this part, is now nearly two inches from it, and his coat is quite too large for him, wrapping over the projecting part very considerably. His shoul-

ders are much lower and more elastic; he can throw the right one further back, and uses it with considerably more freedom; the left hip projects less, and the incurvation in the side is much diminished. The projection of the ribs on the right side is much less painful, and the "knapping" of the ribs as he walks is entirely gone.

As regards his health, he relishes his food more than he almost ever recollects doing, and the state of his secretions is much improved. His spirits have been much more buoyant and cheerful, inasmuch as his improved feelings arise, as he expresses it, from a decidedly better state of health, not having felt himself so well and comfortable for many years past; and his low nervous feelings rarely trouble him.

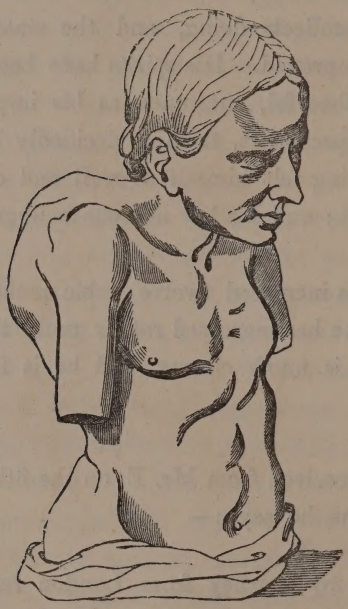
His chest has increased twelve cubic inches in capacity; and in height he has increased rather more than one inch; his complexion is much clearer, and he is likewise stouter than before.

In a letter, received from Mr. E. on the 8th April, among other expressions, he says:—

"I sustained my journey from London remarkably well, and am now in the best health and spirits. Previously to the late winter I suffered severely fron cold, influenza, &c. Up to this time, April 7, I have not had the slightest cold, or anything of the kind. This astonishing change can only be attributed to the improvement of my general health, through the treatment adopted. I deeply deplore my leaving town; could I have continued twelve months longer, I firmly believe my figure would have been, comparatively, straight."

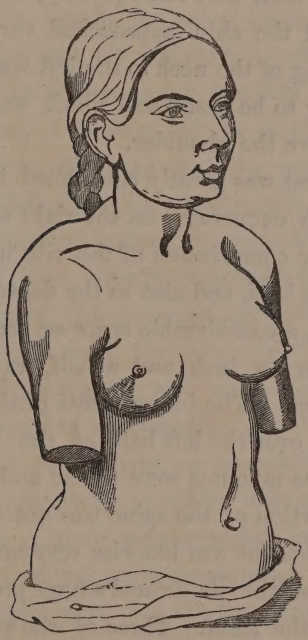
CASE.—*Very severe oblique curvature: partial anchylosis. General health much impaired. A young lady, aged sixteen years and a half.*

I was first consulted about the middle of October, 1847, in the case of Miss W., aged sixteen and a half years, residing in the county of York.



She was a small and delicate child when born, and during infancy was frequently ill. When five years old, she complained of great pain in the upper part of one of the lower extremities, especially after any exertion, as in walking, but there was no paralysis, nor was there any disease of the spine known to exist. At the age of six, she had the measles, from which period her growth was for some time suspended, and she was altogether delicate afterwards; when seven, it was

noticed that she bent to the right side—that the right shoulder was considerably enlarged—that she was soon fatigued, and frequently fell while walking. Two years afterwards, the curvature to the right side and the projection of the right shoulder having increased considerably, her medical adviser recommended her to have a pair of steel stays made, which she has



continued to wear to the present time. When eleven she suffered, and had done so for a considerable time, from a severe cough, attended with difficulty in breathing, and palpitation of the heart.

From the period at which the deformity was first observed, the disease and the consequent debility have gone on in-

creasing to the present time, notwithstanding the use of the stays alluded to, and the anxious care of her parents.

Present State.—On examining this patient, I found that the head projected so considerably forward and to the left side, that on applying a plumb line to the forehead, there was a distance of $4\frac{3}{4}$ inches from the upper end of the sternum to the plumb-line; the neck was, consequently, scarcely visible on a front view; and the chin approached very near the chest. A certain twisting of the neck to the left was increased by the hunch (presently to be described) which was seen projecting considerably above the shoulder.

The whole chest was greatly contracted in front; the ribs were considerably excurvated on the right side, while on the left, owing to the compression of the ribs by the stays, to the projection of the hips, and also to the depression of the shoulder on that side, a considerable space or arch, to the extent of rather more than an inch and a half, existed between the trunk and the arm. The integuments of the chest and abdomen, (especially over the left half of the latter) were much wrinkled, and the mammæ were flaccid and atrophied.

The dorsal portion of the spine was not only curved excessively to the right, but was likewise very much excurvated, so that the spine and the ribs formed a huge projection backwards and upwards to the right. Three of the vertebræ (the 2nd, 3rd, and 4th dorsal) instead of being placed perpendicularly, formed almost a horizontal line at the upper part of the dorsal curve, while the compensating curve in the lower part of the spine had its convexity, of course, to the left side, and was of considerable size: the left hip projected exceedingly, and the same space described as seen in front, between the arm and side, was also seen from behind, while the right arm was

pushed out, by the convexity of the dorsal curve being towards that side. Her cast of countenance was heavy, her complexion not clear, there being an eruption of acne over the whole face, and on her back also; there was also much pain in the lumbar region, and in the right hip as well, which was increased by walking.

She was considered to have entirely ceased growing, not having increased in height for some time, though she now only measured four feet, six and three-quarter inches.

Finding that there was some mobility in the deformed part of the spine, I determined to rectify the distortion as much as possible, thinking that the case offered a hope of success, notwithstanding the great length of time which it had existed. Under the plan of treatment adopted, which was similar to what I have already recommended, a slight elasticity or mobility of the deformed part of the spine which existed, and which gave the hope of benefit being derived, manifestly increased, and was soon followed by an obvious improvement in the appearance of the deformity, so that, by the end of January, on examining the spine and other parts, the projecting shoulder was evidently less, the vertebræ were in a more perpendicular line, the neck was longer, and the chest was more developed. The notes I took on the 25th of April were that she had continued to progress most satisfactorily, not having had a single unpleasant symptom since she commenced treatment, and that the direction of the spinal column and projection of the ribs had much further improved: her general health had likewise become considerably better.

When she had been nearly eleven months under treatment she was in the following improved condition: her head was

quite erect, and had no perceptible inclination to the left side, and the neck was much longer and well-formed; the chest was more expanded, and the two lateral halves of it were nearly symmetrical, and the sternum did not project more than in an ordinarily formed chest, while the spaces between the ribs and arms were much filled up. On a posterior view, the spinal column was much more perpendicular than it had been; scarcely anything of the lumbar curve remained, and the upper one was much improved: those portions in which there was mobility before, having become much more straight, and the marked deformity only remaining in that part where anchylosis had previously taken place, and which it was, of course, impracticable to rectify. The form of the ribs had improved correspondingly with that of the spine.

With this alteration in her figure, her health and strength had likewise increased; she could support her head with perfect ease, and walked comfortably and with a firmer step, while before all motion was a fatigue and a pain to her. Her appetite and spirits were excellent; she had lost all dyspepsia; and instead of being able to expire only thirty cubic inches, as was the case when she first came under treatment, she could then breathe as much as sixty more cubic inches. She had also increased in weight from 5 stones 9 pounds to 6 stones $\frac{3}{4}$ pounds.

Miss W. remained under my care four months longer, in order to confirm the improvement obtained, and during that time she further increased in weight to 6 stones $9\frac{1}{4}$ pounds.

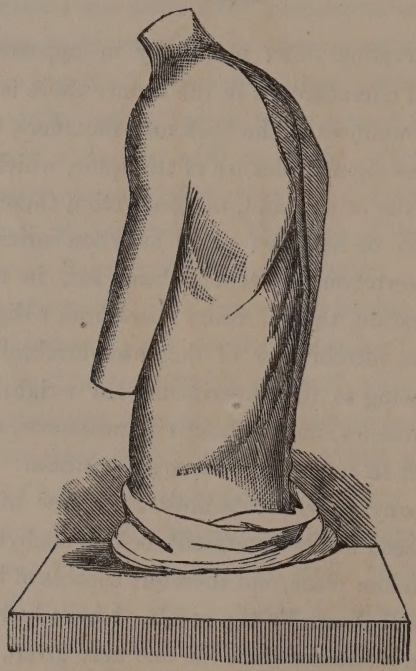
EXCURVATION.

Cases of excurvation differ materially in appearance from those of lateral curvature, as in the former there is a general and uniform roundness of the back and shoulders, instead of the more or less sigmoid flexure of the spine, which exists in the latter: on the other hand, in excurvation there is not the acute projection of any part of it, as when caries of one or more of the vertebræ has taken place: for, in the disease under consideration, the deformity arises from a slight general softening of the vertebræ or of the intervertebral cartilages, from which, owing to the superincumbent weight, the spine is bent; the muscles, under these circumstances, not having sufficient power to retain it in the erect position.

The accompanying woodcuts illustrate a case of this kind, fortunately placed under treatment before anchylosis of the vertebræ had taken place, and therefore capable of being remedied, as was well shown by the result. I have had other cases more severe in character than the one here given, and which have terminated with equal success; but not having had casts taken of them, I prefer giving the following example of the disease —

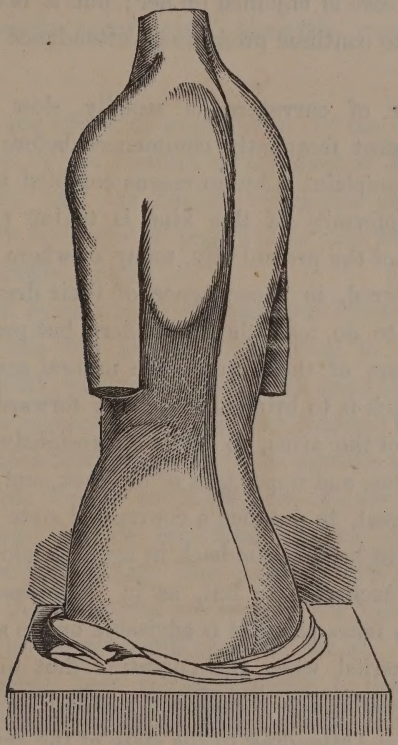
Case.—*Miss S., aged sixteen. General health delicate. Considerable excurvation, roundness of the shoulders, and projection of the scapulæ. Complete recovery.*

March 2, 1837.—Miss S., aged sixteen years, residing in the county of York, came under treatment this day. She was always a weakly child, and is now altogether delicate, her weakness being such that she is constantly tired and weary after very slight exertion: she has considerable difficulty in



breathing, with palpitation, especially on going up stairs. She suffers much from a general weakness in her back and chest: she is pale, or rather sallow and emaciated, appetite variable, and bowels generally torpid. It is evident the disease is progressing, and it has got much worse within the last six months.

On examining her back, there is found considerable excurvation and protrusion of the upper part of the spine and shoulders: the lower angles of the scapulæ project very much: there is great tenderness of the cervical, and eighth and ninth dorsal vertebræ: the chest is very contracted, and the shoul-



ders much pressed forward: to this, doubtless, the difficulty in breathing and palpitation are to be attributed.

June 30.—After the commencement of the treatment, a beneficial change was soon observed, her figure being much more erect, and her health greatly improved. In May, her

difficulty of breathing rarely troubled her, and her chest had become considerably expanded. Her health is now completely re-established; from being sallow and emaciated, she has become stout and healthy-looking: her difficulty in breathing and palpitation have not troubled her at all for some time past. Great care is enjoined on her; but it is deemed quite unnecessary to continue professional attendance any longer.

This form of curvature is usually slow in its progress, and most frequently commences before puberty, although the complaint is by no means confined to that period of life. A deformity of this kind is taking place amongst young ladies of the present day, many of whom are becoming round-shouldered, in consequence of their dress not resting, as it ought to do, *upon* their shoulders, but pressing *against* the upper part of their arms—the natural and obvious tendency of which is to bring the scapulæ forward, to obstruct the free use of the arms, to cause an unsightly protuberance of the shoulders and upper part of the back, and, what is worse than all the rest, to produce a contracted state of the chest.

The forward bend of the back in aged people, is also another form of excurvation; but, as in these cases, anchylosis very speedily takes place, it is advisable not to attempt a cure, unless at a period when the curvature first manifests itself, when, by adopting the recumbent position for two or three hours daily, and attending to the state of the general health, a great deal may be effected towards preventing its further progress, and even improving the form of the spine; under which circumstance, if ossific matter be thrown out, anchylosis will take place in the improved position, and the functions of the various internal organs will be more naturally performed, or,

if they have been deranged, a considerable step is at least gained towards their restoration.

CASE.—*A lady, aged forty-one, had been the subject of some spinal affection, with partial paralysis, for eight years. Symptoms had gradually become worse; and, at last, the spine became excessively excurvated. Complete recovery under treatment.*

The nature and effects of excurvation of the spine will be well illustrated by an abstract of the case of Mrs. P., aged forty-one years, and the mother of eleven children; the details of which are given at page 134 of the Third Edition of the work already alluded to.

This patient came under my care in September, 1829. Her attention was first particularly directed to her spine at Midsummer, 1821, when she walked with great difficulty, and was obliged to support herself on her husband's arm more than she had been accustomed to. The muscles of the extremities afterwards became so feeble, that she was incapable of raising her arm towards her head, or her feet from the ground, without assistance; the cervical vertebræ were so much affected that she could not sustain her head erect, and her chin, in consequence, sank upon her breast. For the last three years she had been confined entirely to the house, and, through inability to walk, was obliged to be carried to and from her room; she complained of excruciating pain in her loins, back, and limbs, which almost altogether prevented her sleeping. The excurvation, in the case of this individual, was exceedingly prominent, and accompanied with such considerable difficulty in breathing, that she could scarcely lie down.

By the adoption, however, of the plan of treatment I re-

commend, her health, at the end of three months, was greatly improved, the curvature and projection of the shoulders had much decreased, and the whole system had become stronger. In January, 1830, her chest had settled by admeasurement at least three inches, and she was one and a half inches taller. She was now able to keep herself in an erect position, and could walk about a little. By April, she was so much improved as to be able to go up and down stairs without any assistance whatever, and her general health was such that she considered herself quite well.

July 1.—She has used the apparatus occasionally, but not regularly, since April, and has progressively improved. She can now take exercise with considerable ease, and is more active than she has been for many years; indeed, she is satisfied she can move about with as much freedom as her daughter of nineteen.

When the extreme state of weakness to which this patient had been reduced is taken into consideration, together with her time of life and previous state of health, the recovery effected may be regarded as truly gratifying.

I subsequently—many years afterwards—heard of Mrs. P., then resident in Bristol: she had then been exempt from any return of her former complaints, and was quite competent to discharge her domestic duties with perfect comfort and facility.

INCURVATION.

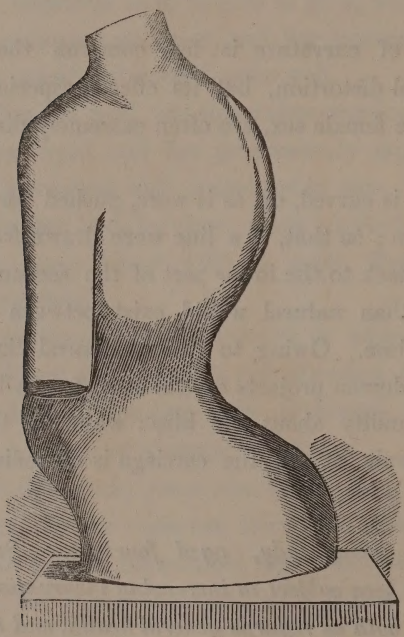
This form of curvature is less common than any other kind of spinal distortion, but its effects, especially when occurring in the female sex, are often extremely distressing and dangerous.

The spine is curved, or, as it were, pushed forwards, in the lumbar region; so that, if a line were drawn from the upper part of the back to the lower part of the sacrum, a distance far greater than natural would exist between it and the lumbar vertebræ. Owing to this unnatural direction of the spine, the abdomen projects exceedingly forwards, and there is great rotundity about the hips; while, if the individual be able to walk at all, the carriage is exceedingly stiff and formal.

Case.—*A young lady, aged fourteen. Suffering from rickets: had been subject to increasing incurvation for several years. Cure, both as regards general health, and the deformity.*

I was consulted, in November, 1840, on account of a young lady, Miss ——, aged fourteen years, resident in Ireland. She had suffered much, during infancy and childhood, from the diseases peculiar to those periods of life; the bad state of health resulting from which was probably the cause of the deformity both in the spine and extremities.

Her deformity had been getting gradually worse for several years, but especially during the two previous ones. She had suffered most distressing pains in her back, as also in the extremities, particularly in the knees, and was so weak as to render it difficult for her to walk at all; indeed, there was some enlargement in the whole of her joints, and

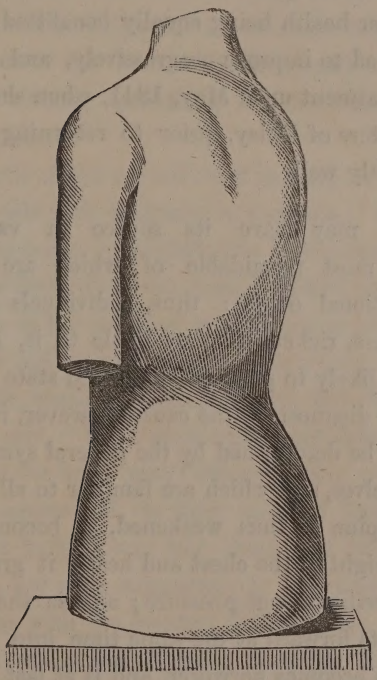


her circulation was so languid that her feet were almost always cold.

In 1832, when five years of age, she had a steel apparatus made for supporting the lower extremities; it passed up the outside of each leg, and fastened round the hips; it was worn upwards of six years. In 1834, an apparatus consisting of a tripod, to which a head-swing was attached, was also made for

her—and together with these contrivances she made use of an inclined plane daily. In May, 1840, she had stays constructed, which were supposed to be well adapted for her, and she wore them until within a short time of the period when I first saw her.

The particular appearance of her back, when she first came



under my care, is well represented in the annexed woodcut, there being an incurvation of nearly three inches, which occupied the lower part of the dorsal and the whole of the lumbar region, but was greatest at the third lumbar vertebra; the sacrum also formed part of the incurvation; the shoulders were somewhat rounded, and the lower angles of the scapulæ

projected more than naturally backwards, but there was no lateral deviation in the spinal column: together with the above, there was considerable prominence of the abdomen. Close attention was paid both to the local treatment and to that of the general health, which was much deranged. An improvement soon took place; the incurvation and the affection of the limbs being much diminished in the course of a few months, her health being equally benefitted.

She continued to improve progressively, and persevered in the plan of treatment until May, 1841, when she took advantage of the waters of Ilkley, prior to returning home, which she did, perfectly well.

Incurvation may have its source in various causes, amongst the most formidable of which are such as are of a constitutional origin: thus, individuals affected with strumous disease, rickets, &c., are liable to it, each of these diseases being likely to produce a softened state of the spinal column. The diagnosis of the cause, however, in any particular case, must be determined by the general symptoms, which present themselves, and which are familiar to all medical men.

When the spine is thus weakened, it becomes unable to support the weight of the chest and head; it gradually bends under the superincumbent pressure; and as the sacrum frequently projects forward at the same time into the cavity of the pelvis, this becomes narrower, and is at last so much encroached upon, that parturition is attended with great danger both to the mother and child, and not unfrequently terminates in the inevitable death of the latter.

The following was such a case; yet, by the adoption of the recumbent position, with gentle extension and pressure, to-

gether with medicinal treatment, not only was the curvature cured, but the patient subsequently enjoyed an excellent state of health.

CASE.—*Considerable incurvation of the spine, with deformity of the pelvis, and accompanied with extreme debility and suffering; occurring in a lady. Complete recovery.*

In October, 1826, Mrs. M., was very ill and confined to bed for several weeks with general weakness, but particularly at the lower part of the back. When seated could scarcely rise, and not without assistance, derived from placing her hands on the chair.

After the birth of her second child in June, 1818, she began to suffer from pain and weakness in the back; sometimes so much so as to occasion great difficulty in walking; and a few weeks after her third child was born, in 1820, such a change had taken place in her personal appearance as astonished her friends; from a tall, slender person, with a long neck, she had become "a little, shapeless creature, with her chin upon her chest." Some said, "Were such a thing possible, I should say you had become the head less;" others of her young friends, who had been accustomed, as they said, to look up in her face, had now to look down; her chest was prominent, her body shortened, her neck comparatively lost, and her limbs so weak, that it was with the greatest difficulty she could walk; in short, the alteration was so great, that her most intimate friends could not have recognised her, except by her features.

1828: January.—Fourth child born: this was, indeed, a most distressing labour, and lasted forty-eight hours. At a consultation held on the occasion, with the late Mr. Chorley, it was deemed, owing to the contracted state of the pelvis, indispensable, in order to save her life, to perform the opera-

tion of embryotomy, which was accordingly done. Subsequent to her accouchement, in addition to her former lameness, weakness and pains, her health was in so bad a state that it was scarcely thought she could recover; she was unable to turn in bed, or to move her legs at all; the least movement in the room distracted her with pain.

She continued in this deplorable state for some weeks, until she was recommended to use the spinal apparatus. When first laid upon the plane, the lower part of her back was bent inwards so much that a hand might be passed under it, edgewise, without touching the extremity of the curve: her chest was so high, that when she placed her hand on her body below the breast-bone, she could not see it as she lay upon the plane.

A great change was soon observed in her appearance; her chest lowered most considerably, and her back became nearly straight. In four or five months she was permitted to walk about a little, which she could do very comfortably. She continued improving until September, 1828, when the treatment was discontinued, as she was in all respects quite cured. She enjoyed an uninterrupted state of good health for many years, and has not since had any return of her spinal affection.

In the next case, the incurvation was extreme, and attended with disease of the hip-joint, which is not an unusual occurrence; or, more properly speaking, disease of the hip-joint, accompanied with contraction of one of the lower extremities, not unfrequently produces this form of spinal distortion.

Case.—*Extreme incurvation, dependent upon shortening of the left lower extremity, and disease of the hip-joint.*

Miss B., aged seventeen years, when in her seventh year,

had the misfortune to fall on her hip, which gave rise to inflammation, and subsequently to two extensive abscesses, from which she suffered exceedingly for several years, being obliged to use crutches during a considerable portion of that time. When I first saw her, the incurvation was of the character represented in the engravings on the two following pages, and the limb on the diseased side was four and a half inches shorter than the other. When laid, she could not straighten the knee, which was bent at a right angle; the state of her health was also very indifferent.

The improvement went on steadily during the whole time the young lady was under treatment, and her cure was ultimately accomplished, as represented by the cast from which the second engraving is taken; the spine having become quite straight, and the contraction of the knee being altogether removed.

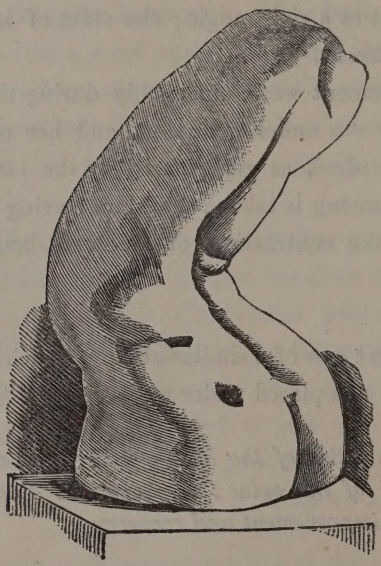
Another severe case of a similar kind, of which the following are particulars, was placed under my care Feb. 4, 1842 :—

Case.—*Incurvation of the lower, with some excurvation of the upper part of the spine; occurring in a child aged four years. Rapid improvement and recovery.*

Emily, daughter of Mr. C., aged four years. Her mother stated that she was born a fine child, but had not any inclination to use her lower extremities until she was nearly three years of age, and then it was with much difficulty, and she was very soon tired.

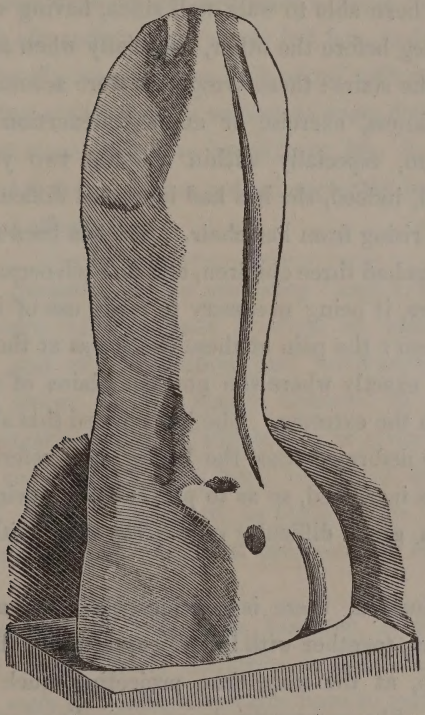
There was incurvation of the lumbar and lower dorsal vertebræ to so great an extent, that on laying her on her back, a

hollow existed of more than two inches between the spinous processes and the table on which she was placed; her shoulders were round, and the integuments of the left side were much wrinkled. The general weakness, and difficulty in moving about, were extreme; the abdomen was greatly enlarged, and the state of her digestive organs was unhealthy, the secretions being in a very morbid condition.



She was placed upon the inclined plane, and pressure, frictions, &c., were regularly applied to the back; the necessary medicines were administered, and a plain, nutritious diet was ordered for her. The improvement went on most rapidly; within six months the distortion was quite removed and her health astonishingly better; she could then walk and play about with great activity, and returned home in excellent spirits.

I saw this patient in the month of August 1855, and she was in the enjoyment of excellent health, stout, and without a trace of the curvature remaining: she was, indeed, considered the most healthy in the family, which consisted of nine brothers and sisters.



CASE.—*Complication of incurvation of the spine, with lateral curvature. Permanent recovery.*

In some instances, incurvation is accompanied with lateral curvature; of which form I had a very severe example in

Mrs. R., aged thirty-six years, who had suffered exceedingly from pain in the lumbar region. She gave the following account of the previous state of her health:—

When about sixteen years of age she was very delicate; at that time she was attacked with a most severe pain in the loins and left side, which prevented her from moving, and she has not been able to walk well since, having difficulty in placing one leg before the other, especially when ascending or descending the stairs: these symptoms were accompanied with general weakness, exercise or any extra-exertion always increasing them, especially within the last two years; since which period, indeed, she has had increased difficulty in walking, or even rising from her chair. She has been married ten years, and has had three children, and on each occasion has had severe labours, it being necessary to make use of instruments in one of them: the pain at these times was at the lower part of the spine, exactly where she now complains of it, and was distressing in the extreme. She has noticed that she has been getting more deformed since the labour just referred to; her weakness has increased, so as to prevent her leaving her home and she has great difficulty in moving at all without assistance.

On examination, there is considerable incurvation of the lumbar region, together with lateral curvature to the left side; the right hip, at the same time, projecting much more than the left one. She constantly stoops, or inclines very much to the left side. On using a plumb-line from the hollow part of the nape of the neck, the spine showed a deviation of two and a half inches from the perpendicular line; the curvature occupied the whole of the lumbar portion of the vertebræ, but especially the region of the first and second, at which part she feels great distress, as if the bones were separating when she

walks across the room: she likewise complains much of a sensation of crackling in the ribs of the left side: the right shoulder is higher and larger than the left.

The treatment was commenced on July 26, by keeping her in the recumbent position for six or eight hours per day, and gradually increasing the time; in two months the incurvation and right hip were greatly diminished, while the severe pain from which she suffered had nearly left her, and in the month of November she was able to walk about with comfort. The family having at this time to remove to some distance, I have not seen her since, but have heard from Mr. R. that she recovered completely, and has not subsequently had any return of the spinal affection.

General Remarks on the preceding Cases.—The efficiency of the modes of treatment I adopt in cases of lateral curvature, and of excurvation and incurvation, has been sufficiently shown by the results obtained in the few preceding illustrative cases, of which I have given some details, and such cases might have been multiplied to almost any extent, had it been necessary, as these forms of curvature, taken altogether, are the most common by far of any we meet with.

The treatment of such cases, however, is very different from what is absolutely requisite in instances of angular projection, such as I shall afterwards have to refer to.

Treatment, to be efficient, should be based upon our knowledge of the pathology of a disease; and here we have diseases essentially different in their pathological condition. Works on spinal affections almost always embrace a description both of the angular deformities connected with caries, and of simple lateral flexures of the spine; but it should

always be borne in mind, that the two diseases are widely different in cause, pathology and results,—that, indeed, the chief bond or link between them, is the fact of a deformity—some deformity or other of the spine being common to both; otherwise, they have no more connection with each other, than have different diseases of any other organ, such as the heart or lungs. These affections may have some symptom or condition in common, as cough in lung-diseases, or palpitations in those of the heart; but the essential condition upon which these symptoms depend may be entirely different in the several diseases of the same organ, and may require as different modes of treatment. Indeed, the mode of cure has to be adapted not only to the special form of spinal deformity which comes under observation, but also to the stage or degree in which it exists; for, an incipient flexure of the vertebral column may be properly treated and efficiently cured, by plans which would be totally insufficient where the curvature has become very great, and where (as in such cases frequently occurs) a thinning of the vertebræ along the concavity of the curvature has already taken place. In the very early stage of lateral curvature, the avoidance of constrained and unfavourable positions, the proper use of exercises whereby certain muscles (varying with the kind of curvature) are brought into action, with frictions and attention to the general health, may be all that is requisite in order to insure improvement and cure; but where the disease has progressed far, such means will not alone be found sufficient, for, in such cases, the muscles become atrophied, the weight of the head and shoulders has a continual tendency to increase the deformity, and the bones themselves even, in severe cases, become, as already stated, altered in form. A straight column of a

given diameter, will readily support a weight, which a curved one, of a similar diameter, can by no means sustain,—and so the spine, while it retains its normal form and condition, will readily support the weight of the head and shoulders; while, when once decidedly curved, the superincumbent weight of these parts only tends more and more to increase the existing deformity. Under such circumstances, it is an obvious indication,—one which a due consideration of the pathology of the disease likewise forcibly points out,—to relieve the spine as much as possible of that weight, the tendency of which is to increase its deformity.

The question, therefore, only remains as to the most efficient mode of following out this indication; and experience, as well as reason, has convinced me that no mode is so efficient as the employment of "temporary recumbency;" while, at the same time, frictions are used, and a certain amount of pressure employed, against the most projecting part of the curvature. Many and very various contrivances have been suggested for the purpose of sustaining or supporting the spine, and relieving it of its superincumbent weight, but inherent defects are common to each and all of them,—they imperfectly do that which they attempt, and, moreover, as they are fitted to and rest upon the pelvis, or some other part of the trunk, they compress those parts, and transmit to them whatever portion of weight they may remove from the spine; indeed, the stays themselves are—many of them at least—not only inefficient, but most unwieldy and injurious contrivances, objectionable even on the ground of their very weight, for some that have been brought to me by patients, who have worn them, and have subsequently come under my care—have weighed three pounds, four pounds, and even six pounds, respectively.

It must be observed, that I do not recommend either permanent recumbency, which is not required; or recumbency alone, which is inefficient. I look upon the frictions and pressure or support to the projecting parts as essential, and, from experience also, I find great amelioration and even rapid improvement to result from the conjoined use of gentle extension during such times as recumbency is employed. This slight extension is best effected by the means I have described in my larger work already referred to, and, does not give rise to the slightest pain or inconvenience; so far the contrary, indeed, that my patients invariably feel relief from the employment of it; and if I found that in any instance it caused uneasiness, I should conclude that it was improperly applied. The extension should always be very slight, and if so used, it not only efficiently removes the injurious pressure of the head and shoulders, but most materially tends to bring the spine to its natural shape or position. Conjoined with this treatment, certain calisthenics and exercises may be adopted, which, by developing the muscles of the back in particular, and of the body generally, will tend to confirm the improvement effected, and even to increase it, though of themselves, in the more severe cases which we have been considering, they would have been ineffectual in producing the desired effect.

I deem it also very essential in all cases to pay great attention to the state of the general health; to correct as far as possible, the digestive and whatever other functions may be out of order, and then by tonics, especially the mineral ones, to build up the system which in these cases is generally very weak and debilitated. I speak from the long experience of more than thirty years that I have specially devoted myself to this class of affections, when I affirm that if the above plan be

efficiently carried out, results are attainable, both as regards the speediness of the cure and its completeness, such as the use of steel stays and similar contrivances, can never effect. The plan is a rational one, and is in accordance both with the anatomical structure of the spine and the pathological condition of the parts affected; and, as I have elsewhere had occasion to say—"It is on the study of the laws of nature that all human science is founded; and the treatment of disease, to be successful, must have their careful observance for its basis."

ANGULAR PROJECTION.

Although the effects produced by other forms of spinal distortion are, as pointed out in the preceding observations, generally serious, yet in none of them are they so grave as in angular projection. This disease results from complete destruction, by ulceration and caries, of some part or the whole of one or more of the bodies of the vertebræ, or from destruction of the intervertebral cartilages, by an ulcerative process. Thus, a part of the support necessary for keeping the head and chest in the erect position, is removed; and these, therefore, by their weight, naturally fall forwards, until the bodies of the vertebræ, above and below the carious part, come into contact: by the falling forwards, however, of the upper part of the trunk, an angular bend in the spinal column is necessarily produced opposite the carious part of it, but varying in size, and in the acuteness of the angle which it forms, according to the number of the vertebræ implicated in the caries, or, at least, in proportion to the number of their bodies destroyed.

If it be the anterior part of the bodies of the vertebræ which is removed by caries, the angular projection thus caused will point directly backwards; but, if the disease attack their lateral portions, the upper part of the spine will naturally incline to the side affected, and the projection will be formed in the opposite direction, thus producing a kind of lateral curvature (or projection), differing essentially in its nature, however, from the disease already described under that name.

Supposing that the restorative powers of nature come into action while the parts are in any of these positions—that ossific matter be thrown out, and that a firm bony union be formed —it is obvious that a permanent deformity must be the result, as it would then be impossible to bring the spinal column into its proper direction. If, however, by gentle extension, the spine be brought into its natural position, and means be then taken to improve the health, ossific matter will be deposited so as to fill up the carious space, and anchylosis will ensue in such a manner as to leave the back permanently straight, instead of irremediably deformed. To effect such a cure, however, the treatment must be commenced sufficiently early, and persevered in, not only until the spine has become straight, but until the anchylosis, in this straightened position, has become perfectly consolidated, which sometimes occupies a considerable period of time. There is a tendency in the deformity to progress, until the caries which gives rise to it, be arrested; so that the disease does not take place suddenly, but the most severe cases are slight at first, and almost imperceptibly increase in severity.

As in this kind of deformity there is always disease, and more or less destruction of the bones themselves, the plan of treatment required is very different in many respects from that demanded by cases of lateral curvature or simple excurvation.

Where caries of the spine has taken place, it is not only desirable as a first step in the treatment, but it is *imperative* to relieve the diseased part as much as possible from all superincumbent weight, and that plan which does this the most efficiently is, as regards the mechanical part of the treatment, undoubtedly the best. If the upper part of the spinal column, above the carious portion, be not supported in its normal posi-

tion, it necessarily falls forward and produces a greater or less amount of hump or projection posteriorly, according to the extent to which the caries has proceeded in the bodies of the vertebræ, besides causing most serious compression of the various viscera of the chest and abdomen; while, if a process of cure go on, when the spinal column is in this position, the anchylosis renders the deformity ever afterwards permanent.

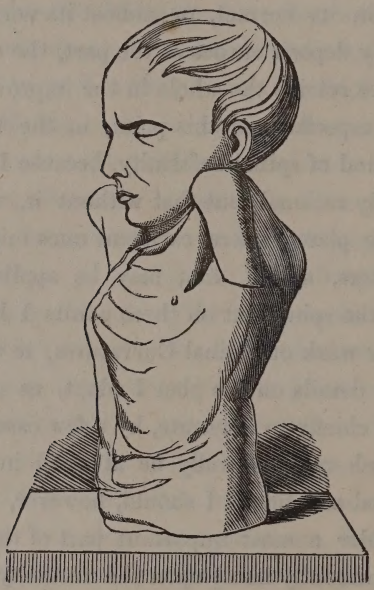
Some practitioners appear to think that comparatively little attention need be paid to the position in which the spine may happen to be, if only anchylosis can be effected; but surely it cannot be a matter of indifference whether a patient or a friend shall ever afterwards be seriously deformed, or whether he shall have the spine comparatively straight. That the spinal column may, in most cases, where bony union has not already taken place, be got into the latter condition, even where the caries has been considerable, does not admit of doubt, and that the anchylosis in the improved condition may render the amelioration permanent, is equally certain. Indeed, ample proof of this is given in the subsequent pages, especially in the case at page 78, in which the deformity was most extreme, when I first saw her, now many years ago, but in which the anchylosis took place in a perfectly straight position, and has so remained ever since.

The question, then, presents itself—How can the improvement in form be best effected? In order to support the upper part of the spine, some practitioners adopt the use of the head-swing, and others employ steel-stays, while others again use the recumbent position. From much experience and much attention to the subject, I must state, emphatically, that in *this* form of spinal affection, the use of the recumbent position *can alone afford hope of a satisfactory result;* the other con-

trivances only very partially support the upper portion of the spinal column, and even that they effect by throwing the weight of it on some other part of the body. On the other hand, by adopting the recumbent position, at the same time employing very gentle extension, and pressure to the parts, the spinal column can, where anchylosis has not occurred, be usually placed in its normal, or almost its normal position, while, when bony deposit ensues at the part, the consolidation which takes place retains the whole in the improved position. I wish to insist especially on this point, in the treatment of this particular kind of spinal deformity, because I feel assured that it is not only rational, but that without it, unfavourable results will take place, where excellent ones might be had. Sometimes blisters, setons, &c., may be applied near the affected part of the spine, but on these points I have entered fully in my larger work on Spinal Curvatures, to which I must refer for further details on the plan I adopt, as my object in this pamphlet is chiefly to illustrate, by a few cases, the excellent results which may generally be attained in very severe instances of spinal affection. I should, however, fail to point out what I consider a most important part of the treatment, if I did not prominently insist upon the necessity of constitutional means being employed at the same time with the local ones. Caries of the spine is so generally a constitutional disease, even where local injury has been the *immediate* cause of its occurrence, that here, even more than in other forms of curvature, the health must be attended to, the digestive organs improved, and the tone of the system brought up by all those means which the several cases demand, whether medicinal or regiminal.

The following cases show the great benefit which may be

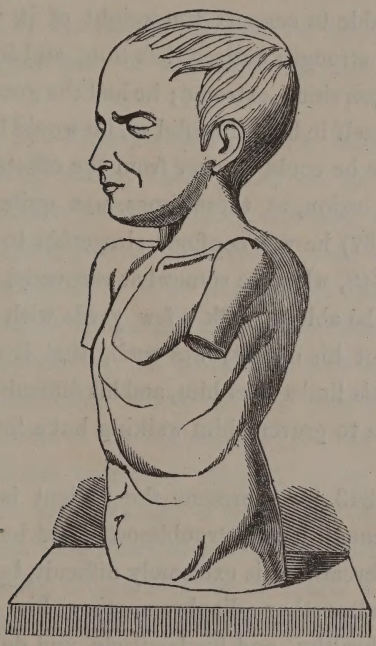
obtained, even in very severe instances of this, the most serious form of spinal disease. In the first of them, there was exceedingly great deformity also in the chest—the sternum being prominent, the ribs compressed, and the shoulders extremely high.



CASE.—*Very great angular projection of the spine, in a boy aged* 11 *years, accompanied with much deformity of the anterior part of the chest. Remarkable improvement in the deformity, the consequent symptoms, and the general health.*

W. F. was born in December, 1832. When an infant, although he was not stout, he was yet a fine child, and his flesh was firm; he had the hooping cough while at the breast, and was subsequently exceedingly ill from enlargement

and hardness of the abdomen. In June, 1834, his nurse slipped and let him fall, in consequence of which he suffered so much that it was not thought he could recover; he did however, ultimately, so far improve that it was hoped no further ill effects would follow. In the month of September, 1835, he had the measles; in the spring of the following year,



a projection of some of the dorsal vertebræ, with an altered form of his chest, was observed in consequence of the child's walking in a singular manner, holding his head backwards, and having his shoulders much raised. Medical assistance was immediately procured, but the disease progressed rapidly, the spine and sternum becoming more and more prominent,

which they have continued to do to the present time. In the course of the summer he lost the use of his lower extremities, and for ten months had not any sensation in them, even when they were pinched intentionally; the spasmodic contractions in them during the nights were most severe, his limbs being forcibly drawn up to his body. As the disease advanced, his head, which was at first thrown backwards, fell upon his chest, as he was not able to support the weight of it without some assistance; his strength entirely left him, and his emaciation was, and has been since, extreme; he had the greatest difficulty in turning himself in bed, if he did so, he would be ten minutes or more, before he could recover from the effects of the exertion; his complexion, at these times, was quite livid. From this period (1837) he was confined altogether to his bed, or a chair, until 1842, when he somewhat recovered the use of his limbs, so as to be able to walk a few yards with the assistance of crutches, but his debility was such, that it was painful to see him drag his limbs after him, and his difficulty in breathing was so great as to prevent him walking but a few paces.

June 27, 1843.—At present the patient is suffering extremely; his cough is very troublesome, but he has no expectoration; his breathing is extremely difficult, being short, frequent, and altogether diaphragmatic; his complexion is sallow and unhealthy, and his lassitude and debility are very great. His emaciation is extreme, his limbs are wasted to the bone, his cheeks are hollow and his countenance expressive of suffering. The spine is exceedingly distorted, presenting a remarkable example of angular projection including all the dorsal vertebræ, excepting the first and last, the most prominent ones being the fourth and fifth; there is considerable

soreness on pressure in the course of the diseased vertebræ. The sternum projects forward excessively, the ribs are much flattened laterally, and project forwards and downwards, so that the extremities of the lower ones fall quite within the brim of the pelvis. The shoulders are so high that, on a lateral view, they almost prevent the ears from being seen, and the head is embedded, as it were, in a hollow formed by them ; while, by the constant pressure of the chin on the sternum, the upper part of this bone has become very much depressed.

September 27.—The patient has now been three months under treatment, having been placed on an inclined plane, and the recumbent position strictly enjoined, while slight and regulated weights, gradually increased, were adjusted to the head and extremities, so as to improve the state of the spinal line, and to reduce the height of the shoulders : pressure has also been appplied on the prominent part of the sternum, and counter irritation to the diseased part of the vertebral column; the state of the digestive organs has been improved, and constitutional treatment adopted, so as to correct the general health and promote a deposition of ossific matter, while the bones were retained in their improved position. The symptoms already enumerated are all much ameliorated; his breathing is less difficult, and his sleep more composed; his shoulders, which were as high as his ears, are much lower, and he feels that when he has occasion to rise for necessary purposes, he has strength for it; he has increased in height two inches.

December 27.—A cast has this day been taken of the patient, and certainly nothing but a comparison of this bust with the one taken when he first came under my care, can give

an adequate idea of the improvement which has taken place. His general health is much better; his breathing, which was, to use his mother's expression, "awful," is now quite easy; he has nearly lost his cough, is much less subject to colds, he sleeps well all night, and his spirits are excellent.

February 29, 1844.—All his symptoms continue favourable; his strength has increased so much that he can walk across the room with perfect ease, and is quite erect, although some protuberance of the spine still remains; notwithstanding the development of his body generally, his chest has diminished an inch and three-eighths in its antero-posterior diameter, having increased proportionably in its transverse diameter. He has grown, since September last, nearly two inches.

June 27.—The patient remained twelve months under treatment, and was so much improved that he could then run about with activity, and was in every respect better. This great change, too, was effected, I am happy to say, without subjecting him to a single hour's pain during the whole time he was under treatment.

Remarks.—The plan of treatment I adopted in this case was such as I have found eminently successful in similar ones, but varied somewhat, so as to suit the peculiarity of the case; for, as no two examples of the disease are perfectly alike, so each one demands some modification of the plan pursued for its cure. The results were most satisfactory; for the deformity was reduced more than could have been anticipated, from the long-standing of the disease and the probable amount of the pre-existing anchylosis, while the general health was got into a very improved state, and he afterwards remained almost altogether free from the many and distressing symptoms which

have been already enumerated. It is very probable that, in this case, the disease had its origin in injury done to the spine by the fall which the patient had when two years of age, and that it became much developed, owing to a deteriorated state of health left by the attack of measles. In great nnmbers of cases, indeed, of angular projection, the commencement of the malady may be traced back to some injury done to the spinal column from a fall, blow, or other accident; these exciting causes, however, in the generality of cases, only producing caries, and consequently deformity, when the health is in an unfavourable state, and especially where the individual is of a scrofulous diathesis.

A very serious symptom from which this patient suffered was paralysis of the lower extremities, produced by pressure on the spinal cord, affecting both sensation and motion, and depriving him altogether of locomotion for a long period. Frequently this affection depends, as in the present instance, upon remediable causes; but sometimes, when the caries is still further advanced, the paralysis becomes permanent, owing, probably, to the pressure upon the cord being of a nature which does not admit of removal; as, for example, exostosis into the spinal canal, or a narrowing of it from the acuteness of angular projection, this sometimes being rendered permanent by the formation of anchylosis. On the other hand, it almost always happens that, in those cases where the spinal projection can be remedied, the paralysis will likewise be removed; for this purpose the recumbent position is absolutely necessary, as, without it, all other treatment is comparatively valueless, and time, which might be available for the cure, may be said to be entirely lost. Exercise, in particular cases and in certain stages of *other* forms of curvature,

may be advantageous; but when the least amount of caries is present, it is not only not useful, but it is worse than useless —it is positively injurious.

The next instance is an interesting

Case *of irregular angular projection, with excurvation of the spine, implicating the whole of the dorsal vertebræ, and attended with paralysis of the lower extremities.*

Miss E. W., aged 28, came under treatment in February, 1852. She had some severe illnesses during childhood, and when about seven years old she had a fall from a chair, and to this was attributed the deformity which subsequently took place; she suffered much from a pain extending from the chest through to the back, especially that part of it which afterwards became the most prominent. When ten or twelve years of age, she stooped considerably, and was round-shouldered, especially when she walked. At eighteen or nineteen her walking became more and more difficult, and was attended with numbness; and she was quite unable to walk at all for six years previous to my seeing her—the lower extremities having had during that time a tendency to become extremely cold; she also suffered from severe spasmodic pains in her limbs, which would be forcibly drawn towards her body many times during the day. She had been under treatment both in the country and in town, but, from her account, without deriving any marked or permanent benefit.

When I first saw her, she was delicate looking, pale, and thin; she complained of much general debility, with difficulty in breathing, and the palpitations before referred to; she had pain of an aching and dull, and sometimes acute character,

down the whole of her back; she had great numbness in her lower limbs, and spasmodic contractions so severe as instantaneously to draw them up to her body. She was unable to walk or even to stand at all. The deformity of her spine was peculiar: it was a combination of excurvation with an irregular angular projection, and the peculiarity seemed to depend upon a large number of the vertebræ (probably almost all the dorsal ones), having the anterior parts of their bodies somewhat affected with caries, while, at the most prominent part, where there was an angular projection, the bodies of two or more had been, to a great extent, destroyed; the spine, therefore, formed a large projection backward, with a more salient or prominent point at about the eighth dorsal vertebra. Owing to the great amount of deformity, the length of the trunk was, of course, exceedingly shortened; and from the bending forward of the spine, the abdomen was compressed from above downwards, and wrinkled transversely. Her neck was exceedingly short, and the chest, as in all such cases, participated in the deformity, and was prominent anteriorly and compressed laterally.

Under these circumstances—caries of the vertebræ and paralysis of the lower extremities—the plan of treatment I recommended was strictly carried out, and great pains were also taken to improve the general health, so as to favour the deposition of healthy ossific matter, while the vertebræ were kept as much in their natural position as possible.

Even at the end of three months much improvement had taken place, and all the symptoms were much relieved, and by August she was so much better, as to be able to walk across the room with very little assistance; her figure became more erect, her general health continued to improve, she

became stouter, and her complexion much clearer; her appetite was good; the cough and palpitation of the heart were nearly gone, and the functions of the stomach and bowels were better, and more naturally performed.

Feb. 12th, 1853. The improvement both in her health and personal appearance had greatly exceeded the expectations both of herself and friends; her shoulders were much lower, her neck was longer, the projection of the back was decidedly less; her general position was much more erect, and the chest was less deformed. Her health was considerably improved; her spirits were better, her complexion was clearer, and her cast of countenance more animated. She preferred the recumbent position on the plane, as she found it much more comfortable than a bed. She could walk out of doors, and did so with an almost firm step, requiring no assistance. My regular professional attendance upon her was therefore discontinued.

August 21, 1854. I this day saw my former patient. She was in the enjoyment of a good state of health; the symptoms mentioned in the course of the case were all better, and she was able to walk four or five miles without more than ordinary fatigue.

Another very distressing complication of angular projection is the formation of abscesses: these consist in collections of a purulent fluid arising from the carious vertebræ, and they may be either confined to the immediate neighbourhood of the diseased bone, or, penetrating amongst the contiguous parts, may present themselves at some external part more or less distant from the seat of the disease; hence, according to the points at which they show themselves externally, they are

named psoas or lumbar abscesses, but the origin of both is the same. These abscesses, greatly increasing the constitutional disturbance already existing, and giving rise to a great amount of hectic fever, with consequent emaciation and debility, the object to be aimed at is, of course, their speedy removal; and it is always desirable to effect this, if possible, by constitutional treatment, assisted by topical applications; but when, in despite of treatment, it appears probable that the matter will not be absorbed, it is then necessary to make an opening to allow of its escape; and, for this purpose, a small valvular one is best, in order that it may more readily heal after the necessary quantity of matter has been evactuated; for it is better to renew the opening as often as circumstances may require, rather than to keep one unhealed for a great length of time.

The following is an example of a very severe

Case *in which there were both psoas and lumbar abscesses depending upon caries of the vertebræ; the disease had been of very long standing, and had reduced the patient exceedingly before he came under my care; by perseverance in constitutional and local treatment, combined with the recumbent position, complete recovery was obtained.*

1841. May.—Mr. M., aged twenty-three years, resident in the county of Lincoln, gives the following account of the previous state of his health:—He was delicate during childhood, having suffered much from severe attacks of croup, and other inflammatory complaints. He has been labouring under spinal disease at least since the summer of 1832, nearly nine years, attention having been first drawn to the spine, from his feeling great weakness there, and being scarcely able to walk, especially on rough road. He afterwards suffered

severely in the dorsal vertebræ, and an abscess formed in the left groin, and another subsequently on the right side. In 1838 a third abscess made its appearance, on the right side of the lumbar vertebræ. In the spring of the following year another formed within the right side of the pelvis, which suppurated in the autumn, and discharged at least a pint of purulent matter; the discharge has continued to the present time, and is increased when he lies upon his back. On examination, there is considerable angular projection of the spinal column, the eighth, ninth, and tenth vertebræ forming the prominent part of the angle; he has an aching pain in the two lower cervical vertebræ, and a sort of instinctive desire to support his head by resting it upon his hand, as it feels too heavy for him; he has a similar pain, but more acute, in the eighth and ninth dorsal vertebræ, which is increased on using exercise, and especially if he be at all fatigued with it; there is also considerable pain in the lumbar region, spreading over the hips, and a distressing weakness and aching throughout the spine either in standing or sitting down, the slightest twist or jerk of the body bringing on these sensations most acutely.

With the above symptoms he has extreme languor and debility, these having gradually got worse and worse every year, and now more severe than at any previous period, being such as entirely to disable him from attending to any business; he has great difficulty in breathing, and palpitation of the heart, especially in going up stairs, when he is obliged to move with the greatest caution; his stomach is in a very disordered state; he suffers from a sensation of burning heat in the epigastric region, and is troubled with disagreeable acid eructations while the alvine evacuations are in a very morbid condition.

Great pains had been taken by his friends as regards the

previous treatment of the disease ; caustic issues had been inserted on each side the projecting vertebræ, and kept open for a considerable time ; he had also employed such other remedies as his medical advisers thought desirable.

A plan, similar in the main to that used in the preceding instance, but modified, so as to suit his particular case, was adopted. He found the inclined plane very comfortable, and used it about eight or nine hours per day, feeling himself considerably relieved, and better upon it than when off. In August all his pains were felt in a very trifling degree ; his difficulty in breathing and palpitation scarcely ever affected him, and the state of the secretions was much more natural.

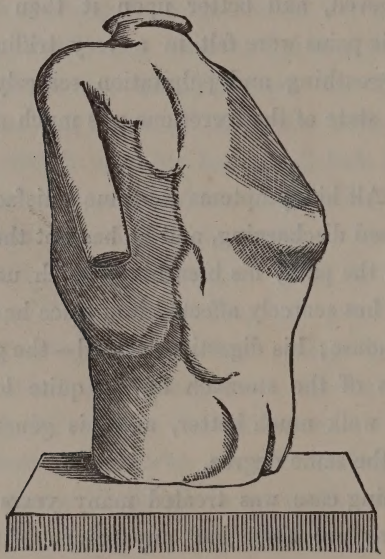
Oct. 28. All his symptoms continue satisfactory ; the abscess has ceased discharging, and he has not the least pain or uneasiness in the part ; his breathing, which used to be very troublesome, has scarcely affected him since he has been confined to the house ; his digestion is good—the general fullness and tightness of the stomach having quite left him, he is stronger, can walk much better, and his general health has improved in the same degree.

The foregoing case was treated many years ago, and the gentleman has not since had any return of the abscesses ; indeed, having occasion to visit London, he called upon me and stated that, since the period when I attended him, he had not had any relapse whatever, but had continued to enjoy excellent health.

As another very strong example of the permanency of the cure, I will here give, from my work previously alluded to, a case which was under treatment in the year 1829, and which remains quite well ; it is remarkable alike for the severity of

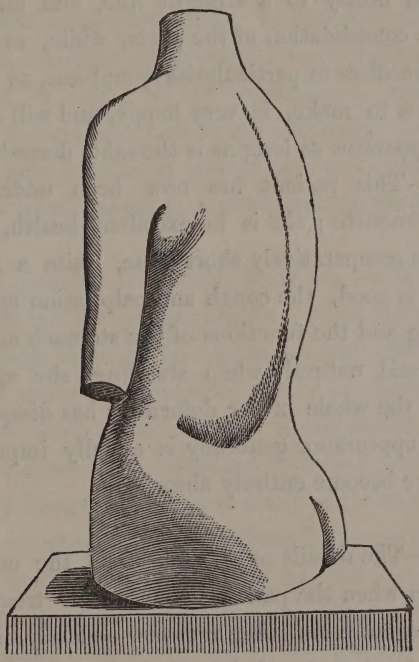
the disease, the entire recovery, and the permanence of the amendment.

CASE.—*A girl, aged* 11 *years, one year after a fall, is observed to have projection of the spine, which, at the end of three years, became extreme; great impairment of health, &c. Complete and permanent recovery—the spinal column scarcely presenting a trace of the deformity many years subsequently.*



1829.—Sept. 1. The daughter of Mr. J. W., aged eleven years, has been very delicate from infancy; she had a severe fall about four years ago, and has since been in a state of almost constant suffering. Three years ago her mother observed a projection of one of the vertebræ, subsequently two more became prominent, and from this time she could not walk at all, except with her hands on her knees.

The enlargement, from the projecting vertebræ to the sternum and throughout the hypochondriac regions, was great in the extreme—two abscesses were forming, one in the region of the liver, the other in the left side, nearly horizontal with, but rather lower than, the diseased vertebræ; the undulation of matter in the latter was quite distinct; the child's health was,



of course, much impaired, her breathing was difficult, palpitation of her heart severe, her digestive organs were much deranged, and her whole frame reduced to a mere skeleton. She commenced the use of the apparatus this day, and had the necessary medicines administered to correct the state of the digestive organs.

1829. Dec. 2.—The patient and her parents have been especially attentive to every direction given them, and the improvement effected has greatly exceeded the most sanguine expectations.

April 6.—The improvement effected in the distortion and in her general health has been very great, the former having been reduced nearly to a straight line, and only requiring time for the consolidation of the parts, while, as regards the latter, it is needless to particularise symptoms, as the girl has no complaints to make, is very happy, and will continue the use of the apparatus as long as is thought desirable

June 1.—This patient has now been under treatment exactly nine months; she is in excellent health, having become, in this comparatively short time, quite a robust girl; her appetite is good, the cough and palpitation entirely gone, her breathing and the functions of the stomach and intestines are regular and natural, when standing she appears quite erect, nearly the whole of her deformity has disappeared, and her personal appearance generally is equally improved. The abscesses have become entirely absorbed.

Remarks.—The details of this case and the engravings—the first taken when the patient came under treatment, and the second seven years after recovery—clearly indicate the effects of the treatment and the permanency of the cure, both as regard the spinal curvature and the excellent state of her health: indeed, however contrary to the general opinion, I can confidently state that the recumbent position, when combined with proper constitutional treatment in the cure of spinal disease, is attended with the most *beneficial* effects as regards improvement in the general health; for in almost

every instance which has come under my care, while the disease of the spine has been undergoing improvement, the individual has also, at the same time, become both stronger and stouter.

The foregoing are a few illustrations of the benefits derivable from the plans which I have recommended and carried out so successfully, for many years past. I trust that the system I pursue has, in consequence of what I have previously written, been followed by many of my professional brethren; for I know that if it have been carried out efficiently, the results obtained must have been most satisfactory, and must often have exceeded the most sanguine expectations of those who have adopted it.

The relief obtained is twofold, for it has reference both to the deformity and the general health. Most of the engravings in the foregoing pages by no means present examples of the most perfect cures I have effected,—they were selected to illustrate how much could be done in the *worst cases* rather than to show complete restorations of form in the less severe instances. I have taken casts of many of the cases which have been under my care, and among those I have now in my collection will be found examples of some even more remarkable for completeness of the cure than those I have detailed. The less severe cases,—those in which the disease has been of shorter duration, and in which the alterations of structure have been less—necessarily admit of the most complete cure, but enough has been shewn, I trust, in the preceding pages to prove that almost every case admits,—unless complete anchylosis of the parts have taken place—of very important relief, while the permanence of the cure is testified by the length of

time which has elapsed since some of the cases were under my care, and the very excellent accounts I continue to receive of them. Nor is the improvement which takes place in the general health less satisfactory or important. When general and local treatment go, as they ought always to do, hand in hand, the patient's health uniformly improves, and in almost all the cases I have had under treatment, the patient has become stouter and more robust, the languor, lassitude, pains, and difficulty in breathing which so frequently accompany the deformity have diminished or disappeared, and many who have long been confined to their rooms, or at least more or less shut out from the world, have again taken their places in, and become active and useful members of society.

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